

**BEFORE THE ILLINOIS COMMERCE COMMISSION**

**Docket No. 02-0864**

**Direct Testimony of Dr. Debra J. Aron  
On Behalf of SBC Illinois**

**SBC Illinois Exhibit 2.0**

**December 23, 2002**

**PUBLIC VERSION**

## TABLE OF CONTENTS

<b>I. INTRODUCTION .....</b>	<b>1</b>
<b>II. EXISTING UNE PRICES ARE NOT COMPENSATORY .....</b>	<b>5</b>
<b>III. UNDER-PRICED UNES HARM THE DEVELOPMENT OF GENUINE COMPETITION.....</b>	<b>24</b>
<b>IV. EVIDENCE OF MARKETPLACE DISTORTIONS AND INEFFICIENCIES IN ILLINOIS .....</b>	<b>42</b>
<b>POSSIBLE IMPROVEMENTS TO THE TELRIC APPROACH IN ILLINOIS .....</b>	<b>45</b>

**DIRECT TESTIMONY Of DR. DEBRA ARON  
ON BEHALF OF AMERITECH ILLINOIS**

**I. INTRODUCTION**

**Q.1 Please state your name and position.**

A.1 My name is Debra J. Aron. I am the Director of the Evanston office of LECG, LLC, and Adjunct Associate Professor at Northwestern University. My business address is 1603 Orrington Avenue, Suite 1500, Evanston, IL, 60201.

**Q.2 Please describe LECG, LLC.**

A.2 LECG is an economics and finance consulting firm that provides economic expertise for litigation, regulatory proceedings, and business strategy. Our firm comprises more than 300 economists from academe and business and has 25 offices in seven countries. LECG's practice areas include antitrust analysis, intellectual property, and securities litigation, in addition to specialties in the telecommunications, gas, electric, and health care industries.

**Q.3 Please describe your professional qualifications.**

A.3 I received a Ph.D. in economics from the University of Chicago in 1985, where my honors included a Milton Friedman Fund fellowship, a Pew Foundation teaching fellowship, and a Center for the Study of the Economy and the State dissertation fellowship. I was an Assistant Professor of Managerial Economics and Decision Sciences from 1985 to 1992, at the J. L. Kellogg Graduate School of Management, Northwestern University, and a Visiting Assistant Professor of Managerial Economics and Decision Sciences at the Kellogg School from 1993-1995. I was named a National

23 Fellow of the Hoover Institution, a think tank at Stanford University, for the academic  
24 year 1992-1993, where I studied innovation and product proliferation in multi-product  
25 firms. Concurrent with my position at Northwestern University, I also held the position  
26 of Faculty Research Fellow with the National Bureau of Economic Research from 1987-  
27 1990. At the Kellogg School, I have taught M.B.A. and Ph.D. courses in managerial  
28 economics, information economics, and the economics and strategy of pricing. I am a  
29 member of the American Economic Association and the Econometric Society and an  
30 Associate member of the American Bar Association. My research focuses on multi-  
31 product firms, innovation, incentives, and pricing, and I have published articles on these  
32 subjects in several leading academic journals, including the *American Economic Review*,  
33 the *RAND Journal of Economics*, and the *Journal of Law, Economics, and Organization*.  
34 I currently teach a graduate course in the economics and strategy of communications  
35 industries at Northwestern University.

36 I have consulted on numerous occasions to the telecommunications industry on  
37 competition, costing, pricing, and regulation issues in the U.S. and internationally. I have  
38 testified in several states regarding economic and antitrust principles of competition in  
39 industries undergoing deregulation; measurement of competition in telecommunications  
40 markets; the proper interpretation of Long Run Incremental Cost and its role in pricing;  
41 the economic interpretation of pricing and costing standards in the Telecommunications  
42 Act of 1996 (“TA96” or “the Act”); limitations of liability in telecommunications;  
43 Universal Service; and proper pricing for mutual compensation for call termination. I  
44 have testified in a number of states on issues pertaining to broadband markets, broadband  
45 deployment, and incentives for broadband investment. I have also submitted affidavits to

the Federal Communications Commission (“FCC”) analyzing the merits of SBC Ameritech Michigan’s application for authorization under Section 271 of the Telecommunications Act to serve the in-region interLATA market, CC Docket No. 97-137; explaining proper economic principles for recovering the costs of permanent local number portability, CC Docket No. 95-116; explaining the economic meaning of the “necessary and impair” standards for determining which elements should be required to be unbundled under TA96, CC Docket No. 96-98; and an analysis of market power in support of Ameritech’s petition for Section 10 forbearance from regulation of high-capacity services in the Chicago LATA, CC Docket No. 95-65. I have consulted to carriers in Europe, the Pacific, and Latin America on interconnection and competition issues and have consulted on issues pertaining to local, long distance, broadband, wireless, and equipment markets. I have conducted analyses of mergers in many other industries under the U.S. Department of Justice and FTC Merger Guidelines. In addition, I have consulted in other industries regarding potential anticompetitive effects of bundled pricing and monopoly leveraging, market definition, and entry conditions, among other antitrust issues, as well as matters related to employee compensation and contracts, and demand estimation. In 1979 and 1980, I worked as a Staff Economist at the Civil Aeronautics Board on issues pertaining to price deregulation of the airline industry. In July 1995, I assumed my current position at LECG. My professional qualifications are detailed in my curriculum vitae, which is submitted as Schedule\_\_\_\_(DJA-1).

**Q.4 Have you previously testified before the Illinois Commerce Commission (“ICC” or “Commission”)?**

A.4 Yes, on a variety of occasions. My recent testimony includes Docket No. 02-0160 (regarding the competitive benefits of “winback” pricing activities); Docket No. 00-0700 (regarding the economics of sharing obligations); Docket No. 98-0396 (economic issues regarding non-recurring costs); Docket No. 02-0365 (regarding special access services prices); and Docket No. 01-0614 (regarding the interpretation of rules on “ordinarily combined” elements).

**Q.5 What is your understanding of this proceeding?**

A.5 I understand that SBC Illinois (“SBC Illinois” or “the Company”) is filing this case to establish new prices at which it seeks to sell unbundled network elements (“UNEs”), including the so-called UNE-platform (“UNE-P”) to Competitive Local Exchange Carriers (“CLECs”).

**Q.6 What is the purpose of your testimony?**

A.6 My testimony demonstrates that the current prices for SBC Illinois’ unbundled network elements have been set at uneconomically low levels. I describe the harmful effects that such uneconomically low UNE prices impose on the development of genuine competition, and I provide evidence that such harms are occurring in Illinois. Finally, I discuss two of the issues (fill factors and the impact of future stranded investment on asset lives) that the Commission could address to help ensure that SBC Illinois’ UNE prices are placed on an economically sustainable footing that would help rationalize and strengthen the telecommunications industry, to the long-term benefit of consumers.

**II. EXISTING UNE PRICES ARE NOT COMPENSATORY**

**Q.7 Dr. Aron, please provide an overview of SBC Illinois' current UNE prices.**

A.7 The method of pricing SBC Illinois' UNEs has ostensibly been based on forward-looking engineering assumptions about the configuration of a hypothetical network composed of the best, most efficient technology currently available, assuming the existing placement of the Company's wire centers. However, the improper application of the FCC's total element long-run incremental cost ("TELRIC") methodology to SBC Illinois has resulted in the omission of legitimate forward-looking costs and, as a result, SBC Illinois' current UNE prices are well below the Company's actual costs of providing UNEs. I conclude that because the Company's current UNE prices reflect a misapplication of the FCC's TELRIC methodology, they do not permit even the *opportunity* for SBC Illinois to recover its ongoing costs of providing UNEs. In fact, I show:

- SBC Illinois' existing UNE-L and UNE-P are among the lowest prices in the nation;
- SBC Illinois' UNE margins (revenues minus costs, including the cost of capital), based on the Company's 2001 expenditures as reported to the FCC, are significantly negative.

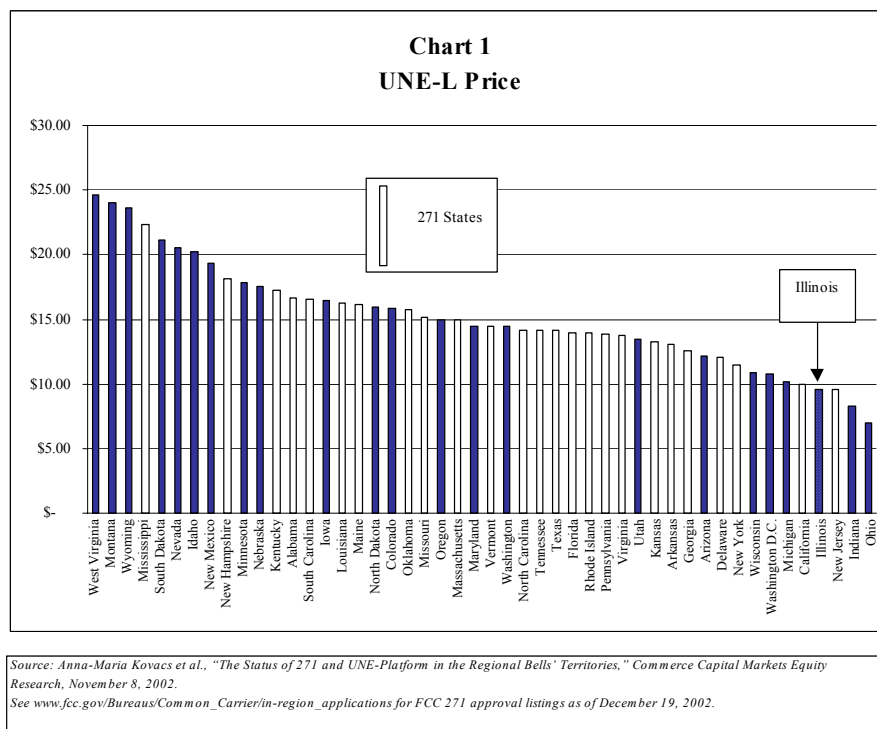
As a result, these uneconomically low UNE prices damage the incentive and ability of both SBC and CLECs to invest in telecommunications infrastructure in Illinois. Six years after the Act was signed into law in 1996, the consequences of uneconomic prices are appearing in Illinois:

- The actual number of new rivals entering into SBC Illinois'-served territory has remained approximately constant in Illinois during 2002, but there has been an increase in non-facilities-based CLECs and a decrease in facilities-based CLECs; and
- Increases in CLEC-served lines in SBC Illinois' territory increasingly are non-facilities (UNE-P) based. That is, CLECs increasingly are relying on the SBC Illinois

114 network to provide their services, rather than making investments in network  
115 infrastructure in the state.

116 **Q.8 How do SBC Illinois' current UNE prices compare to those in the rest of the U.S.?**

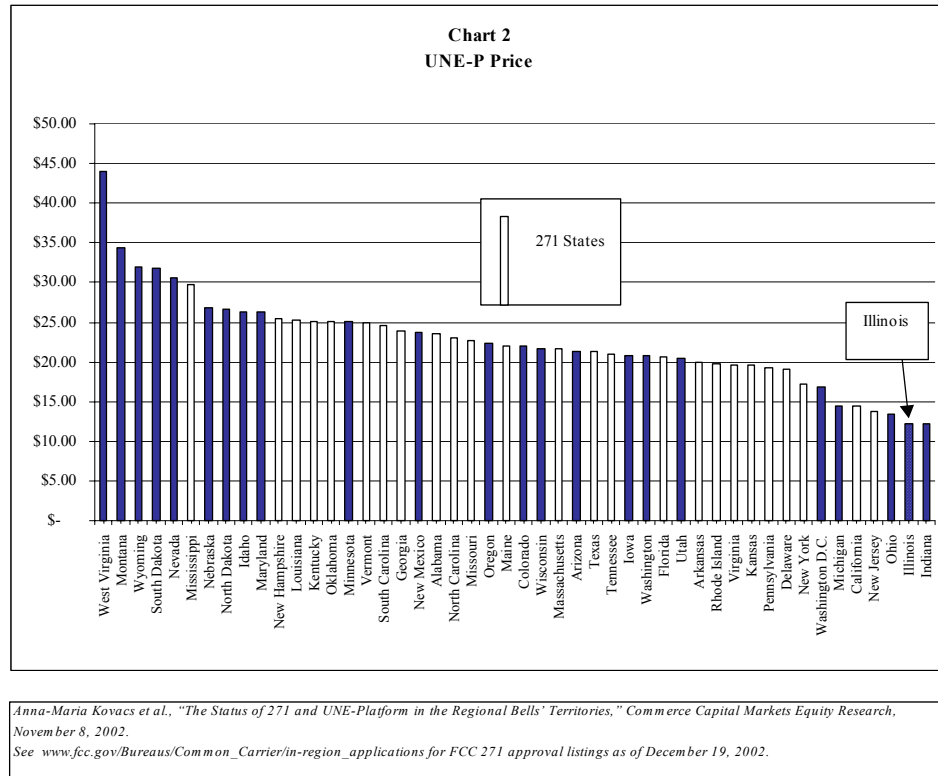
117 A.8 According to an analysis by investment house Commerce Capital Markets ("CCM"),  
118 SBC Illinois' existing prices for UNE-L and UNE-P are among the lowest of the 48 states  
119 that they examined.<sup>1</sup> (See Charts 1 and 2.)



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<sup>1</sup> CCM reviewed 47 continental U.S. states (excluding Connecticut) and Washington, D.C. The numbers relied upon for the analyses that follow are a weighted average of UNE-L and UNE-P prices as developed by investment analyst Dr. Anna-Maria Kovacs. (See Anna-Maria Kovacs et al., "The Status of 271 and UNE-Platform in the Regional Bells' Territories," Commerce Capital Markets Equity Research, November 8, 2002, p. 1. (Hereafter *CCM November 2002*)). The weights are the number of lines served by the particular Bell operating company ("BOC"). According to an *ex parte* presentation at the FCC, AT&T estimates that the UNE-P price for SBC Ameritech Illinois is, on average, \$12.69, which is approximately the same as the \$12.22 average UNE-P price estimated by CCM. (See AT&T Notice of Oral Ex Parte Communication, *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket Nos. 01-338, 96-98, and 98-147, September 30, 2002 (referencing a September 27 meeting) (Chart entitled "UNE-P wholesale cost")).





Such prices might not raise concerns if they simply reflected SBC Illinois' low costs. However, this is not the case. In order to control for cost differences, I performed an analysis of levelized costs reported by SBC Illinois.

My analysis shows that the Company's average revenue per loop (for UNE-L) or revenue per line (for UNE-P) per month is substantially below the costs the Company recognizes on its books to provide those UNEs. (See Table 1).

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<b>TABLE 1</b> <b>ANALYSIS OF REVENUES AND COSTS PER LOOP OR LINE PER MONTH</b> <b>FOR SBC ILLINOIS</b> <b>(2001 COST DATA)</b>				
		Source	UNE-L	UNE-P
	<b>SBC Illinois</b>			
1	Revenue (i.e., UNE price)	<i>CCM November 2002</i>	\$ 9.53 <sup>(1)</sup>	\$ 12.22 <sup>(1)</sup>
2	Book Cost (including capital cost)	ARMIS/LECG	\$ 14.91 <sup>(2)</sup>	\$ 25.62 <sup>(2)</sup>
3	Net	L1-L2	\$ (5.38)	\$ (13.40)
4	% Revenue Increase Required to Break Even	L2/L1-1	56%	110%
<b>Sources &amp; Notes:</b> <sup>(1)</sup> Source is <i>CCM November 2002</i> . Includes non-recurring charges amortized over 36 months. (See Anna-Maria Kovacs et al, "The Status of 271 and UNE-Platform in the Regional Bells' Territories," Commerce Capital Markets Equity Research, May 1, 2002, p. 11. (Hereafter <i>CCM May 2002</i> ). <sup>(2)</sup> Source is FCC ARMIS files (www.fcc.gov) (2001). Data are adjusted by LECG analysts to obtain total wholesale (UNE) expenses and investment. Key assumptions: Loop costs are reduced by 17.8% to reflect avoided retail costs. (See John Hodulik et al., "How Much Pain from UNE-P?: Analysis of UNE-P Economics for the Bells," UBS Warburg Global Equity Research, August 20, 2002, p. 6. (Hereafter <i>UBS Warburg</i> )); assumed depreciation rates are FCC approved depreciation rates; and assumed cost of capital is 12.19%. If one assumed instead the FCC's approved cost of capital of 11.25%, the UNE-L cost would be \$14.67 and the UNE-P cost would be \$25.24. Also, if we assume instead of the 17.8% avoided retail costs that shedding retail costs is unlikely (see <i>CCM May 2002</i> , p. 15), but keeping the FCC's depreciation schedule and 12.19% cost of capital, Illinois' loop costs would be \$18.14 and Illinois' UNE-P costs would be \$28.85. Costs do not include any adjustment for uncollectibles.				

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129 I used the FCC's financial accounting information as reported in its Automated Reporting  
130 Management Information System ("ARMIS") files to obtain the historical cost data.

131 These data are reported to the FCC for purposes of tracking the interstate rate of return.

132 The ARMIS data represent only the interstate allocation of the costs of regulated services,  
133 so I "reversed out" the effects of that allocation to determine total loop (UNE-L) and line  
134 (UNE-P) costs. For example, the FCC attributes 25 percent of loop costs to the interstate  
135 jurisdiction, so I computed total loop costs by multiplying the interstate portion by 4.

136 I also levelized costs by considering depreciation expense (I used the FCC's  
137 depreciation expense, and therefore the FCC's depreciation lives<sup>2</sup>) and by applying a

<sup>2</sup> I understand that others in this proceeding will address the appropriate depreciation lives for use in a forward-looking cost study.

periodic return on invested capital (i.e., the rate of return of 12.19 percent, that I understand SBC estimates as its cost of capital) multiplied by average net investment. I did not add any costs to account for working capital.

I also subtracted 17.8 percent of loop-related expenses to account for costs that may be avoided when moving from retail to wholesale. I understand that for SBC Illinois, the wholesale discount rate varies by service. I therefore used the wholesale discount rate developed in the *UBS Warburg* report as representative of the costs that the Company might shed when a retail line becomes a UNE element (or UNE-P line). My use of a 17.8 percent discount is a very conservative assumption. The principle of “avoided cost” that is applied for purposes of calculating the avoided cost discount under the FCC’s rules implementing TA96 is to determine the net costs that would be avoided if the entire retail function were avoided, not the costs that would be avoided if the retail infrastructure remained, but fewer customers were served at retail. If the carrier ceased retail operations entirely, not only would variable retailing costs decline, but so also would fixed infrastructure costs and other volume insensitive costs such as advertising and some costs associated with billing. In real markets, those fixed costs are not avoided when the ILEC serves a subset of customers via wholesale resale rather than at retail. Hence, even if the net avoided cost under the FCC’s “wholesale only” principle of avoided cost is accurately calculated at 17.8 percent, the retail costs that the incumbent can avoid as its retail volumes decline (or do not grow as fast) will be less than 17.8 percent, and perhaps substantially less. Indeed, as CCM’s Dr. Kovacs points out in her May 2002 study, and I concur, it is possible that the companies will not be able to cut any

160 meaningful costs as a result of serving wholesale/UNE rather than retail lines.<sup>3</sup> This can  
161 be due to, for example, increases in marketing and promotions. Thus, my reduction of  
162 loop-related expenses by 17.8 percent overstates the amount of costs the firm likely has  
163 avoided in providing UNEs.

164 My calculations are weighted on the basis of the Company's retail lines  
165 (correspondingly, the UNE-L and UNE-P prices reported in the *CCM November 2002*  
166 study are based on a weighted average of the different geographic rate zones). Average  
167 revenues per loop or line from actual sales may not be the same as the calculated average  
168 if CLECs purchase these UNEs in a geographic distribution that is different from the one  
169 that characterizes SBC Illinois' retail customers. My estimates are conservative to the  
170 extent that CLECs target those customers whose revenues are above average. Likewise,  
171 the average costs of UNE-Ls and UNE-Ps will vary from this overall average based on  
172 the geography that UNE sales typically cover compared to the average loop or line used  
173 by the Company to serve its retail customers.

174 **Q.9 What other indication do you have that SBC Illinois' current UNE prices might be**  
175 **problematic from an economic standpoint?**

176 A.9 SBC Illinois' UNE prices do not even generate sufficient revenues to cover its day-to-day  
177 cash expenditures to provide those UNEs, even excluding the cash demands from taxes,  
178 bondholders, and investors. My analysis of cash flows is summarized in Table 2.

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<sup>3</sup> *CCM May 2002*, p. 15.

<b>TABLE 2</b> <b>SBC ILLINOIS</b> <b>ANALYSIS OF CASH FLOWS PER LOOP OR LINE PER MONTH</b> <b>(2001 COST DATA)</b>				
		Source	UNE-L	UNE-P
1	Revenue	<i>CCM November 2002</i>	\$ 9.53 <sup>(1)</sup>	\$ 12.22 <sup>(1)</sup>
2	Cash Operating Expenses (XI&T)	ARMIS/LECG	\$ 6.54 <sup>(2)</sup>	\$ 10.97 <sup>(2)</sup>
3	Cash Capital Expenditures (“capex”)	ARMIS/LECG	\$ 8.10 <sup>(3)</sup>	\$ 13.98 <sup>(3)</sup>
4	Cash Operating Gain (Loss)	L1-L2-L3	(\$ 5.11) <sup>(4)</sup>	(\$ 12.73) <sup>(4)</sup>
<b>Sources &amp; Notes:</b> <sup>(1)</sup> Source is <i>CCM November 2002</i> . <sup>(2)</sup> Source is FCC ARMIS files (www.fcc.gov) (2001) as adjusted by LECG analysts to obtain total wholesale (UNE) expenses and investment. As defined here, cash operating costs include a 17.8% discount for the elimination of retail costs (See <i>UBS Warburg</i> , p. 6). To the extent that such cash operating cost reductions are not forthcoming (see <i>CCM May 2002</i> , p. 15), the UNE-L overall cash costs are \$7.96 and the UNE-P cash operating costs are \$12.39 per line per month. The cash operating costs computed here do not include interest or income taxes. <sup>(3)</sup> Capex includes all of the RBOC’s cash capital spending on property, plant & equipment in ARMIS (statement of cash flows), and so includes capex for items not related to basic service. Capex is allocated to the UNE-L on the basis of total plant in service from the ARMIS 43-01 report. <sup>(4)</sup> Partial estimate of actual dollar losses. UNE-L and UNE-P generate negative cash per line per month requiring cash infusions. This analysis does not account for cash interest, cash tax, or cash dividends, cash or generated by working capital, or an adjustment for uncollectibles.				

This table shows cash inflows (i.e., revenues from the sale of an average UNE-L or UNE-P). It also shows cash outflows for operating expenses and capital spending.<sup>4</sup> Unlike Table 1, Table 2 does not show overall costs. The cost data in Table 2 do not include interest expenses, income taxes, or a normal return to equity shareholders, nor does it include non-cash costs such as depreciation and amortization. Instead, Table 2 shows the operational cash costs incurred by the Company to run its “wholesale” operations,<sup>5</sup> exclusive of those costs associated with financing (e.g., interest) or costs that arise as a function of profits (e.g., income taxes and return to equity shareholders), based on 2001 actual data. Line 4 of table 2, therefore, illustrates the approximate cash financing that SBC must come up with per line per month to offset these operational cash outlays associated with providing UNE-L and UNE-P in 2001, if it were to maintain the same

<sup>4</sup> Some of that capital is for growth and for services unrelated to UNE-L or UNE-P, such as data and advanced technology.

<sup>5</sup> I adjusted downward the operating cash costs to remove retail costs.

level of capital expenditure as it made in 2001. Table 2 shows that on a per-line basis, SBC would collect on the order of \$12.22 for each UNE-P sold at existing weighted-average prices, but that in 2001 it spent over \$24.95 (i.e., \$24.95 = \$10.97 of cash operating expenses + \$13.98 of cash capex) per line per month on cash operating expenses and new capital spending, thereby necessitating a monthly cash infusion per line from outside the wholesale (i.e., UNE) part of the business of about \$12.73. This excludes, as I mentioned, interest, income taxes, or any return to equity shareholders. Similarly, SBC Illinois would receive on the order of \$9.53 for its UNE-Ls, but the Company spent on the order of \$14.64 per loop per month in cash operating and capital costs to run its “wholesale” operations, leaving a cash deficit of at least \$5.11. As with my calculations for UNE-P, my UNE-L calculations in Table 2 focus on the operations side and do not include cash spent to pay interest on the Company’s debt, to pay income taxes, or to contribute any return to equity shareholders and, therefore, underestimates SBC Illinois’ cash expenditures.<sup>6</sup>

Table 2 illustrates that on the simplest basis of business analysis—cash in and cash out—putting aside costs of depreciation, normal returns to capital, and even interest and taxes (which are also cash costs), the company loses on the order of \$12.73 per month per UNE-P sold. One may debate depreciation rates and returns on capital, but revenues that fail to cover day-to-day cash expenditures should be a clear signal that the business model is unsustainable at current expenditure levels and prices.

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<sup>6</sup> As I mentioned, I do not analyze changes in working capital that could be a net source or use of cash attributed to operations.

**Q.10 Dr. Aron, given that the relevant pricing standard is the FCC's TELRIC-based pricing methodology, why is the foregoing analysis relevant?**

A.10 Even though my analysis is not intended to be a TELRIC study, the exercise is still instructive. The results demonstrate that the existing prices are nowhere near the levels required to encourage SBC Illinois to invest capital in the telecommunications infrastructure. A hypothetical new entrant would lose money selling its network wholesale at the existing UNE-P prices unless its costs were less than *half* of what SBC Illinois booked in 2001. Put differently, its actual forward-looking costs for UNE-P would have to be less than half of last year's costs per line in order to have an opportunity to earn a return commensurate with the risks incurred to provide UNEs.

Moreover, the Commission should not ignore—nor does TA96 require the Commission to ignore—the economic consequences of the prices that the Commission determines for UNEs. Just the opposite is true, in my view. The Supreme Court found in its *Verizon* decision that the FCC's TELRIC-based pricing methodology is intended to provide incumbent LECs with the opportunity to recover their costs and that the FCC's methodology charges the states with the task—and the limited discretion—to determine the numerical inputs to the cost methodology that are consistent with that methodology and with the establishment of compensatory prices.<sup>7</sup> Application of a TELRIC methodology in a way that produces prices that provide no meaningful opportunity to recover resource costs (as I have demonstrated to be the case) is a very powerful signal to investors to avoid that particular investment. It is also a powerful signal that a mistake has been made in applying the FCC's TELRIC-based pricing methodology.

In a very real sense, investors are the final arbiters of the appropriateness of UNE prices. If the prices are inefficiently low, investors will not supply funds to firms to invest in the telecommunications network. Uneconomically low UNE prices certainly hurt CLECs' facilities-based business plans as well as those of the ILECs, who are required to charge such prices. But the ultimate harm is imposed on consumers, who bear the costs of forgone investment through less satisfying product offerings, dated telecommunications infrastructure, and lack of redundant network facilities.

**Q.11 Dr. Aron, would you expect your cost analysis, based on ARMIS data, necessarily to be higher than forward-looking costs?**

A.11 No. There is no *a priori* reason that forward-looking costs necessarily must be lower (or higher) than the costs that are computed from the actual data that the company submits to the FCC in its ARMIS reports. The most efficient hypothetical forward-looking network evaluated at forward-looking prices may be more or less costly than historical costs and past technology. If the most efficient forward-looking technology is cheaper than the existing network—because technology has become less costly, or the prices of key inputs, such as electronics or optical fiber have declined—then forward-looking prices will be lower than actual booked costs, all else equal, even if the existing network is as efficient as possible given the available technology and input prices effective during the time period over which it was built. If, in contrast, the forward-looking technology is more costly than past technology—a theoretical possibility in light of the fact that newer

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Footnote continued from previous page ...

<sup>7</sup> *Verizon Communications, Inc., et al. v. FCC, et al.*, 2002 U.S. LEXIS 3559 (U.S. May 13, 2002). (Hereafter *Verizon*).



technologies provide a far greater array of services than older technologies—this will drive forward-looking costs above actual booked costs. The fact that the prices of many inputs, such as land and labor, have increased over time would also drive forward-looking costs above book costs.

Under the accounting principles used for industrial firms in the U.S., long-term assets bought by a firm are carried on that firm's books at the purchase price, without making any upward adjustments for increases in the asset's nominal value due to inflation or particular circumstance (e.g., a change in the market value of downtown real estate property). As a result, such asset values can be understated on the books relative to what a properly applied forward-looking cost approach requires. Hence, forward-looking hypothetical costs may be above or below booked costs even if the booked costs reflect a perfectly efficient firm.

Of course, booked costs can exceed estimates of forward-looking costs for the simple reason that the forward-looking costs are improperly estimated. If the cost estimates rely on a faulty model, the difference between such estimates and booked costs has nothing to do with efficiency or any of the other factors I have discussed. As I will discuss later in my testimony, the use of unrealistically high fill factors or unrealistic depreciation rates, among other factors, can result in incorrect estimates of forward-looking costs.

It is therefore incorrect to assume that (1) any difference between booked costs and estimated forward-looking costs necessarily must be the result of inefficiency, or indeed that (2) booked costs must be higher than properly applied forward-looking costs. Certainly, such conclusions are contrary to the FCC's notion of its TELRIC pricing

concept. In its *Local Competition Order*, the FCC concluded that “we reiterate that the prices for the interconnection and network elements critical to the development of a competitive local exchange should be based on the pro-competition, forward-looking, economic costs of those elements, which may be higher or lower than historical embedded costs.”<sup>8</sup>

**Q.12 From an economic perspective, of what consequence is your financial analysis of reported ARMIS results?**

A.12 Financial data are important because investors, who supply capital to a firm, use such data to determine a firm’s prospects and their willingness to finance future maintenance and growth of the network. In the capital market, analysts determine whether to advise investors to provide capital to a firm by comparing the current share price with the firm’s “intrinsic value.”<sup>9</sup> This value is determined by evaluating the prospects for future profitability and discounting them back to the present. As explained by *Graham & Dodd*, one of the classic texts on investment and investing, all such investment analysis begins with the accounting records:

All security analysis involves the analysis of financial statements. . . . In the selection of common stocks much more emphasis is placed upon *future expectations* as the primary basis of attractiveness and value. In theory these expectations may be so different from past performance that the latter could be virtually irrelevant to the analysis. But this separation of the future from the past rarely occurs in practice. A tendency toward an underlying continuity in business affairs makes the financial record the logical point of departure for any future projection. . . . The investment

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<sup>8</sup> First Report and Order, *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98 and *Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers*, CC Docket No. 95-185, FCC 96-325 (August 8, 1996), ¶ 705. (Hereafter *Local Competition Order*).

<sup>9</sup> Benjamin Graham, David L. Dodd, and Sidney Cottle, *Security Analysis: Principles and Technique*, 4<sup>th</sup> ed. (New York: McGraw-Hill, 1962), p. 54. (Hereafter *Graham & Dodd*).

approach to every kind of security—which is the analytical approach—  
requires the proper application of income-account and balance-sheet  
analysis.<sup>10</sup>

If the expected returns (including compensation for risk) do not meet or exceed the  
returns available elsewhere in the economy, investors are unlikely to provide capital to  
that firm. The actual accounting record forms a starting position for the determination of  
expected value and investor willingness to provide investment capital. If booked  
revenues and expenses were of no value in assessing future prospects, investors would  
care little how accountants assembled financial statements. However, the furor over  
accounting decisions in the wake of the Enron affair and the WorldCom debacle  
illustrates that investors are keenly interested in these figures and that they want the  
accounting books accurately and reasonably to reflect the actual financial circumstances  
of the firm.

**Q.13 Are investment analysts pointing out the mispricing of UNEs?**

A.13 Yes. It appears that the relationship between UNE prices and regional Bell operating  
company (“RBOC”) accounting data are becoming more important to investors as the use  
of UNEs and UNE-P increases. Investment analysts, who have access to the same  
financial data that I used, are now expressing concerns about the course of UNE pricing  
throughout the industry. For example, investment analyst Scott Cleland said :

[I]f there is no opportunity to earn a return or even worse, a loss is  
guaranteed, the producer will have no incentive to maintain the quality of  
the resold good or even supply the good at all. In fact, current pricing is  
perversely discouraging facilities investment, as CLECs are moving  
customers from their own facilities to UNE-P resale because the

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<sup>10</sup> *Graham & Dodd*, pp. 105-106.

government's artificial economics are a more profitable alternative. UNE-P functions like a tax on investment, rather than a competitive incentive.<sup>11</sup>

Another analyst, Dr. Anna-Maria Kovacs of CCM (whose work I referred to earlier), has issued several reports containing quantitative analyses of the effect of UNE prices and UNE-P on the earnings outlooks of both ILECs and CLECs.<sup>12</sup> Dr. Kovacs consistently reaches the same qualitative conclusions that I do based on my analysis of ARMIS costs. For example, Dr. Kovacs concludes in her May 2002 report:

[F]or all RBOCs, UNEs are priced below cash operating cost, and radically below total operating cost including depreciation and amortization. The discounts from total cost are 50%-60% below total cost even when total cost does not include cost of equity, a component that is allowed under TELRIC.<sup>13</sup>

In her November 2002 update report, Dr. Kovacs concludes that the situation has not changed: UNE-P prices are not compensatory to the RBOCs:

[T]hese calculations still show that UNE-P rates do not cover the cost of providing the line (even without taking the cost of equity into account), even if one pulls out the costs of marketing and customer service that the RBOC theoretically eliminates when it loses a line to a CLEC over UNEP. . . . RBOC-wide losses range from a low of \$6.83 per line at Qwest to \$14.96 at SBC if one takes out the cost of marketing and customer service. The losses range from \$11.51 per line at Qwest to \$20.43 per line at SBC if one does not assume such a savings. Included in these numbers

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<sup>11</sup> Scott Cleland, "Why UNE-P Is Going Away: Telecom Competition's Changing Trajectory," Precursor Group Investorside Research, October 2, 2002. (Emphasis and underscore in the original).

<sup>12</sup> See, e.g., *CCM November 2002*, *CCM May 2002*, and Anna-Maria Kovacs, et al., "The Status of 271 and UNE-Platform in the Regional Bells' Territories," Commerce Capital Markets Equity Research, August 22, 2002 (Hereafter *CCM August 2002*). See, also, Anna-Maria Kovacs, et al., "Status & Implications of UNE-Platform in Regional Bell Markets," Commerce Capital Markets Equity Research, November 12, 2001. (Hereafter *CCM November 2001*).

<sup>13</sup> *CCM May 2002*, p. 15.

346 are operating costs, interest, taxes and depreciation, but not cost of  
347 equity.<sup>14</sup>

348 This divergence between UNE prices and ILECs' actual costs of providing UNEs is  
349 exacerbating the problems that virtually all service providers have in today's environment  
350 of attracting capital in order to add to or upgrade their telecommunications infrastructure:

351 To create UNEP prices that may be attractive to the CLECs, regulators are  
352 forcing the RBOCs to wholesale their network at rates that are  
353 significantly below the costs that the financial community looks at. That  
354 point is particularly significant in the current environment, in which even  
355 some of the RBOCs find it difficult to raise the funds needed to reinvest in  
356 their networks, and the CLECs find it well-nigh impossible.<sup>15</sup>

357 **Q.14 Are there other recent analyst studies that address the issue of UNE prices?**

358 A.14 Yes. There are three of which I am aware that have performed a quantitative analysis of  
359 UNE prices and costs. Although these studies all use somewhat different methodologies,  
360 assumptions, and data, they reach the same qualitative conclusion that I do, which is that  
361 current UNE prices are not compensatory in Illinois.<sup>16</sup> Studies by Merrill Lynch<sup>17</sup> and  
362 UBS Warburg<sup>18</sup> look at the cash costs of the UNE-P business case in Illinois and  
363 elsewhere. Their studies correspond, in form, with my Table 2 in the sense that they  
364 examine cash operating expenses rather than total costs. A study by CCM, released in  
365 November 2002, looks at the total costs (except for the cost of capital) of the UNE-P

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<sup>14</sup> CCM November 2002, p. 5.

<sup>15</sup> CCM May 2002, p. 15.

<sup>16</sup> CCM examines the five Ameritech states as an aggregate rather than Illinois individually, as I explain later.

<sup>17</sup> Adam Quinton, et al., "The Telecommunicator: Telecom Act Seven Years On—The UNE Shock Wave Belatedly Reverberates Around the RBOCs—And How!," Merrill Lynch Global Securities Research & Economics Group, September 23, 2002. (Hereafter *Merrill Lynch 2002*).

<sup>18</sup> UBS Warburg.

366 business case for the collective Ameritech states (Illinois, Indiana, Michigan, Ohio, and  
367 Wisconsin) as well as for the other former Bell operating companies.<sup>19</sup> This study  
368 corresponds generally with my Table 1 in the sense that the analysis looks at total costs  
369 including depreciation, interest, and income taxes.

370 The UBS Warburg study found that UNE prices in many states, including Illinois,  
371 fail to cover estimated cash operating expenses.<sup>20</sup> UBS Warburg estimates that SBC  
372 Illinois' average UNE-P price is about \$8.92 and that its cash operating expenses  
373 (excluding interest and income taxes) are \$16.50, generating a negative margin of \$7.58.  
374 In a separate PowerPoint presentation that UBS Warburg used to help explain its  
375 analysis, the analysts said, "[The] economics of UNE-P are worse than we originally  
376 expected. UNE-P lines generate negative EBITDA [earnings before interest, income  
377 taxes, and depreciation and amortization] in 18 states for the Bells (60% of US residential  
378 lines)."<sup>21</sup>

379 The second study I am aware of is by analysts at Merrill Lynch. Their data permit  
380 a direct comparison with my own analysis in Table 2. Merrill Lynch estimates that the  
381 average UNE-P price for SBC Illinois is \$14.82 and that average cash operating expenses  
382 (exclusive of interest and income taxes) are \$17.27, generating a negative margin of  
383 \$2.45. Merrill Lynch also considers the cash impact of capital spending on the finances  
384 of the firm. The study estimates that capital spending is on the order of \$10.83, so that

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<sup>19</sup> *CCM November 2002.*

<sup>20</sup> *UBS Warburg*, pp. 15, 20.

<sup>21</sup> John Hodulik, et al., "The Regional Bells: How Much Pain from UNE-P?," UBS, PowerPoint presentation, 2002, p. 7 of presentation.

the net impact is a negative cash flow (excluding interest and income taxes) of \$13.28 per line.

Table 3 illustrates the conclusions reached by UBS Warburg and Merrill Lynch. The table also shows my own analysis for comparison purposes. The table shows that both UBS Warburg and Merrill Lynch reach the same qualitative conclusions that I reach in my Table 2 (cash flow) analysis, though my own analysis appears to be more conservative.

<b>TABLE 3</b> <b>COMPARISON OF CASH SPENDING ANALYSES OF UNE-P FOR SBC ILLINOIS</b> <b>(DOLLARS PER LINE PER MONTH)</b>				
		Aron Table 2 <sup>(1)</sup>	Merrill Lynch <sup>(2)</sup>	UBS Warburg <sup>(3)</sup>
1	Revenue per UNE-P per Month	\$ 12.22 <sup>(4)</sup>	\$ 14.82 <sup>(5)</sup>	\$ 8.92 <sup>(6)</sup>
2	Operating Cash Expenses <sup>(7)</sup>	\$ 10.97 <sup>(8)</sup>	\$ 17.27 <sup>(9)</sup>	\$ 16.50 <sup>(10)</sup>
3	Cash Capital Spending (Capex)	\$ 13.98 <sup>(11)</sup>	\$ 10.83 <sup>(12)</sup>	not estimated
4	Cash Generated (Needed) <sup>(13)</sup>	\$ (12.73)	\$ (13.28)	(\$7.58 + capex) <sup>(14)</sup>
NOTES: <sup>(1)</sup> See Table 2, above. <sup>(2)</sup> <i>Merrill Lynch 2002</i> . <sup>(3)</sup> <i>UBS Warburg</i> . <sup>(4)</sup> Source is <i>CCM November 2002</i> . The amount is adjusted for actions that the ICC took in Docket 00-0700. <sup>(5)</sup> <i>Merrill Lynch 2002</i> , Table 3. The amount is not adjusted for the actions that the ICC took in Docket 00-0700. <sup>(6)</sup> <i>UBS Warburg</i> , Table 6. The amount is not adjusted for the actions that the ICC took in Docket 00-0700. <sup>(7)</sup> Defined as cash operating expenses excluding interest and income taxes. <sup>(8)</sup> Aron Direct Testimony, Table 2 Line 2. <sup>(9)</sup> <i>Merrill Lynch 2002</i> , Table 14. <sup>(10)</sup> <i>UBS Warburg</i> , Table 10. <sup>(11)</sup> Aron Direct Testimony, Table 2 Line 3. <sup>(12)</sup> <i>Merrill Lynch 2002</i> , Table 14. <sup>(13)</sup> Cash generated (required) per line per month, excluding interest, taxes, or return to capital. Or L1 – L2 – L3. <sup>(14)</sup> The <i>UBS Warburg</i> report discusses capital expenditures (as well as income taxes) but does not provide state-specific estimates. Accordingly, the cash required for each UNE-P line assumes zero capex, and is correspondingly larger according to UBS Warburg's views on capital expenditure requirements.				

CCM analyzes the UNE-P business case for SBC in all of the five Ameritech states as an aggregate. This analysis includes operating costs and capital costs (depreciation) as well as interest and income taxes. It is therefore similar to my analysis in Table 1, except that the *CCM November 2002* analysis does not include an equity

return. The analysts conclude that prices in the Ameritech region, in the aggregate, are substantially below cost.

<b>TABLE 4</b> <b>ANALYSIS OF REVENUES AND EXPENSES PER LINE PER MONTH</b> <b>FOR SBC ILLINOIS</b> <b>(2001 COST DATA)</b>			
		Aron SBC Illinois (Table 1)	CCM November 2002 (Ameritech States)
1	Revenue (i.e., UNE Price)	\$ 12.22 <sup>(1)</sup>	\$14.04 <sup>(1)</sup>
2	Costs	\$ 25.62 <sup>(2)</sup>	\$28.60 <sup>(3)</sup>
3	Net Margin (Loss)	\$ (13.40)	\$ (14.56)
4	% Revenue Increase Needed for Breakeven	110%	104%
<b>Notes:</b> <sup>(1)</sup> Price data from <i>CCM November 2002</i> . Includes non-recurring charges amortized over 36 months. See <i>CCM May 2002</i> , p. 11. <sup>(2)</sup> FCC ARMIS files ( <a href="http://www.fcc.gov">www.fcc.gov</a> ) (2001) adjusted by LECG to obtain total wholesale (UNE) expenses and investment. Key assumptions: Loop costs are reduced by 17.8 percent to reflect avoided retail costs (see <a href="https://clec.sbc.com/clec_documents/unrestr/interconnect/resale/Complete_Resale_Agreement.exe">https://clec.sbc.com/clec_documents/unrestr/interconnect/resale/Complete_Resale_Agreement.exe</a> ); assumed depreciation rates are FCC approved depreciation rates; and assumed cost of capital is 12.19 percent. <sup>(3)</sup> <i>CCM November 2002</i> , p. 20. Cost data is the average for all Ameritech states. Costs include operating costs, interest, taxes, and depreciation, but exclude cost of equity. Costs adjust out data services and retail costs. See <i>CCM November 2002</i> , p. 5.			

Some observations:

- My own conclusions are confirmed by those investment analysts who have taken the time to examine the effect of UNE prices in the local telecommunications marketplace;
- Compared to others, my own computations are conservative; and
- All of the analyst studies as well as my own lead to the conclusion that existing UNE prices are below the costs actually incurred and booked by the Company by a substantial amount.

**Q.15 It would appear from your Table 2 that carriers could improve the solvency of their UNE operations by reducing capital spending. Are such reductions in capital spending what one would normally expect as competition takes hold in a market?**

**A.15** No, not necessarily. Reduced capital spending is by no means an inevitable consequence of increased competition in a market, assuming the prices in the market are economically



supportable. If prices are compensatory, SBC will have the incentive to sell UNEs to buyers, to upgrade its network, and to make a business of wholesale network elements even under very competitive conditions. Moreover, economically-priced UNEs will improve the viability of facilities-based CLEC strategies, thereby improving the diversity of networks and services. Compensatory UNE prices are necessary to reestablishing health to the telecommunications marketplace.

**Q.16 Are you requesting that the Commission guarantee a profit for SBC Illinois?**

A.16 No. However, my conclusion is that, on average, current UNE prices do not afford SBC Illinois even an *opportunity* to earn a normal return on the lease of its network elements. It is the opportunity (or expectation) of earning at least a normal return that is minimally required to attract investor interest to this investment and permit the continued viability of the network investment. However, a firm (even the hypothetically efficient firm) would require costs on the order of *one-half* of SBC Illinois' 2001 costs to have a reasonable opportunity to recover its costs of providing UNE-P.

**Q.17 Dr. Aron, do the 1996 Telecommunications Act and the FCC's pricing rules implementing the Act necessarily result in non-compensatory UNE prices?**

A.17 I am not an attorney, nor do I seek to render a legal opinion, but my reading of the plain language of the 1996 Act and the Supreme Court's recent opinion in the *Verizon* case is that the FCC's TELRIC-based pricing methodology must be understood to permit compensatory prices, through the proper selection of inputs to reflect the idealized assumptions of the FCC's TELRIC model. In fact, the Court rejected incumbent carriers' argument that the FCC's TELRIC-based pricing model, even when properly applied,

does not permit recovery of costs associated with increased risk and shortened asset lives.

According to the Court:

The argument, however, rests upon a fundamentally false premise, that the TELRIC rules limit the depreciation and capital costs that ratesetting commissions may recognize. In fact, TELRIC itself prescribes no fixed percentage rate as risk-adjusted capital costs and recognizes no particular useful life as a basis for calculating depreciation costs. On the contrary, the FCC committed considerable discretion to state commissions on these matters.<sup>22</sup>

That is, the Court concluded that proper application of the FCC's TELRIC-based pricing methodology requires recognition and recovery of the costs the carriers would incur as a result of increased cost of capital, increased risk of sunk assets, and shorter asset lives associated with the hypothetical, idealized assumptions of the TELRIC methodology. It is not only within the purview of the state commission to ensure that these costs are recognized, it is the state commission that is charged with that task.

### III. UNDER-PRICED UNES HARM THE DEVELOPMENT OF GENUINE COMPETITION

**Q.18 Is there a social benefit to keeping UNE prices artificially low so as to encourage competitive entry into Illinois?**

**A.18** No. Encouragement in this manner is neither necessary nor desirable. Setting UNE prices below any reasonable level of cost to provide life support for some CLECs and a toehold for others is not in the public interest; rather, it is manufacturing "synthetic"

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<sup>22</sup> *Verizon*, at \*91.

458 competition, to use the D.C. Circuit Court's term<sup>23</sup> and artificially assisting competitors,  
459 at the expense of genuine competition.

460         Assisting entry by reducing wholesale network element prices to unrealistic levels  
461 in order to encourage entry produces relatively weak firms that may require continuous  
462 support and regulatory protection to survive. It can also harm facilities-based  
463 competitors (either drive them from the market or encourage them to get on the  
464 bandwagon and adopt the use of the underpriced network elements as their provisioning  
465 strategy). After a while, it may appear that substantially all of the competitors depend on  
466 the inefficiently priced UNEs. There is less infrastructure investment (and less product  
467 differentiation at the infrastructure level). Moreover, as a matter of political economy, it  
468 can be very difficult to eliminate these inefficient prices. Beneficiaries of the mispricing  
469 will be vocal in their support of continuing the inefficient prices, while there may not be  
470 an organized constituency speaking for the consumers who will be harmed in the long run  
471 as a result of depressed facilities-based competition and depressed network investment.  
472 As a result, the pricing distortion can be quite long-lasting, and it can set back the  
473 development of genuine competition.

474 **Q.19 Dr. Aron, an issue that is sometimes raised in the context of UNE price changes is**  
475 **concern about a "price squeeze." What is a price squeeze?**

476 A.19 A price squeeze is a relationship between the price of an "upstream" or wholesale  
477 monopoly service or element and the revenues from the sale of the "downstream" or

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<sup>23</sup> In its May 24, 2002, opinion in *United States Telecom Association v. FCC*, the United States Court of Appeals for the District of Columbia Circuit characterized as "completely synthetic competition" that competition which is "performed with ubiquitously provided ILEC facilities" provided at "Commission-imposed prices [that] are highly attractive to CLECs." *United States Telecom Association, et al. v. FCC, et*  
Footnote continued on next page ...

retail services in which the price of the upstream monopoly element or service, plus the incremental cost of any competitively supplied inputs that are needed to bring the service to market, exceed the revenues that reasonably are expected from the sale of the relevant set of retail services.

**Q.20 Should UNE prices be kept artificially low so as to prevent a price squeeze?**

A.20 No. If it is determined (and the determination is not trivial<sup>24</sup>) that a price squeeze exists between UNE prices and other inputs on the one hand and regulated retail prices on the other, this may be due to below-cost retail prices. In that case, social welfare is promoted when the retail price is moved toward cost rather than moving the UNE prices below and away from cost. The latter, in any event, is not permitted under the plain language of TA96.

**Q.21 If the price of UNE-P, plus the incremental costs of retailing services, exceeds the price of basic local service, does this constitute a price squeeze against UNE-P-based providers?**

A.21 No, not necessarily. A proper analysis of a price squeeze against UNE-P providers must account for a comprehensive consideration of retail services revenue opportunities that are available to UNE-P providers. The relevant comparison is not simply between the UNE-P price (plus the costs of retailing functions) and the retail price of basic local service, but, rather, the revenue analysis must include all of the revenues that are

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*al.*, 2002 U.S. App. LEXIS 9834, at \*23, \*24 (D.C. Cir. May 24, 2002). (Hereafter *U.S. Telecom Association*).

reasonably available from the economically relevant set of services that the CLEC may provide over the UNE-P. Specifically, one would consider those revenues that would be expected to accrue to a local service provider offering service via UNE-P from the sale to a typical CLEC customer of local service, vertical features, access, and possibly other services.<sup>25</sup> If an efficient CLEC can reasonably expect all of these revenues when it provides service to a typical customer, and if these revenues exceed the price it pays for UNE-P plus the costs it would incur to provide retailing services, then the UNE-P prices cannot be exclusionary with respect to such a CLEC. Hence, there would be no price squeeze. Thus, it is inapt to compare the ILEC's price of (e.g.) residential local exchange service alone to the price of UNE-P and draw a definitive conclusion about the existence or absence of a price squeeze.

**Q.22 Suppose that the prices of UNEs, and the incremental costs of other necessary resources, are such that UNE-based CLECs find that they cannot make a return commensurate with the risks that they incur. Does this indicate that competition is not viable in the market?**

**A.22** Not necessarily. The availability of resale under TA96 ensures that there is available to CLECs a method of entry that provides a profit margin. The resale method can be used

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<sup>24</sup> The complexity is especially true in regulated industries where both the upstream (wholesale) and downstream (retail) prices are regulated. See, e.g., *Town of Concord, Massachusetts, et al. v. Boston Edison Co.*, 915 F.2d 17 (1<sup>st</sup> Cir. 1990).

<sup>25</sup> If the usual purchase included other services (e.g., Internet access via DSL), these revenues should be incorporated as well. See, Memorandum Opinion and Order, *In the Matter of GTE Telephone Operating Cos., GTOC Tariff No. 1, GTOC Transmittal No. 1148*, FCC Docket No. 98-292, October 30, 1998, ¶ 31. In that Order, the FCC concluded that, "When a requesting carrier purchases these unbundled network elements, the facilities in question are capable of supporting a variety of services in addition to ADSL, such as local exchange service and access services. Competitors need not recover their costs from ADSL service alone; they have the same opportunity as GTE to recover the costs of network elements from all of the services they offer using those facilities. Thus, a carrier choosing to offer only data service over a facility

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in those instances where the costs of a UNE-based (or self-supply-based) approach exceed the retail rates for the relevant services. Hence, even if unduly low retail service prices rendered UNE-P competition unviable, they would not be exclusionary with respect to resale. In my opinion, this is one reason that TA96 provides for resale and requires the wholesale price of resale to be based on the existing retail rate, rather than on costs: under such a pricing scheme, even if retail prices are below cost for legacy regulatory reasons, an entry path is nevertheless available. By the structure of the wholesale resale price established in TA96, efficient resellers cannot be subject to a price squeeze.

**Q.23 Suppose a CLEC claims that it requires, for example, a ten-dollar margin on UNE-P (i.e., difference between retail prices and UNE-P prices) in order to consider entering a state and competing. If the actual margin is less than ten dollars, is this evidence of a price squeeze?**

**A.23** No, it is not. A properly applied price squeeze analysis assesses whether the margin between wholesale prices and retail prices are sufficient to cover the costs of the self-provisioned inputs (such as retailing functions) into the retail service incurred by a reasonably efficient firm. If the margin is not sufficient to satisfy the business plan of a *particular* firm, that is not sufficient evidence to infer the existence of a price squeeze. Rather, it may imply that the firm requiring the specific margin is inefficient, or that it demands a return in excess of a normal return to capital. The FCC has addressed this

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that is capable of carrying more . . . may not reap the entire revenue stream that the facility has to offer.”  
(Footnotes omitted).

issue in several of its 271 investigations.<sup>26</sup> The FCC has decided, correctly in my view, that claims that are made regarding the need for particular margins are not dispositive:

Both AT&T and WorldCom assert that, to enter the local market in Delaware, they must achieve margins greater than (sic) their internal costs, which are more than \$10 per-line, per-month. As we have stated in previous section 271 orders, *we are not concerned with a “sufficient” profit margin for AT&T or WorldCom, but a sufficient profit for an efficient competitor.* Therefore, we are not convinced by AT&T and WorldCom claims that their potential margins must exceed their internal costs of more than \$10.00 per line, per month for them to enter the Delaware local market. The Delaware Commission also was not convinced that an efficient competitor’s reasonable internal costs would be so high when it set a 20 percent resale discount. *Our experience from previous section 271 proceedings shows that competitive LECs may be able to enter the local telephone market even where they allege that the available margins are less than \$10.* For example, WorldCom is offering its “Neighborhood” local service package in Oklahoma, Kansas, Massachusetts, Missouri, Arkansas, Georgia, Louisiana, Alabama, Kentucky, Mississippi, North Carolina, and South Carolina, all states where commenters alleged a price squeeze that would preclude entry into the local market. *Furthermore, WorldCom’s own data, filed in a previous 271 proceeding, show that it has decided to enter markets where it will achieve a “minimally acceptable” UNE-Platform margin that is substantially lower than \$10, and falls between \$5 and \$7.* These entry decisions cast further doubt on the AT&T and WorldCom estimates of their own internal costs, and their analyses of the potential margins that are available in Delaware.<sup>27</sup>

**Q.24 In your estimation, is there sufficient evidence that the Commission should be concerned about a price squeeze at the UNE prices proposed by SBC Illinois?**

<sup>26</sup> Memorandum Opinion and Order, *In the Matter of Joint Application by BellSouth Corporation, et al. for Provision of In-Region, InterLATA Services in Georgia and Louisiana*, 2002 FCC LEXIS 2484, at 40 – 41, ¶¶ 283-290 (rel. May 15, 2002). (Hereafter *BellSouth Georgia/Louisiana 271 Order*). Memorandum Opinion and Order, *In the Matter of Verizon New England, Inc., et al. For Authorization To Provide In-Region, InterLATA Services in New England and Delaware*, 2002 FCC LEXIS 4769, ¶¶ 142-162. (rel. September 25, 2002) (Hereafter *Verizon New Hampshire/Delaware Order*).

<sup>27</sup> *Verizon New Hampshire/Delaware 271 Order*, ¶ 157 (Emphasis added). (Footnotes omitted).

A.24 No. I analyzed SBC Illinois' residential and business local exchange revenue data on a per-line basis for each of the Company's access areas and found that in each case, the revenues earned by SBC Illinois (per line) exceeded the corresponding UNE-P price so that the margins were positive in all Access Areas. The overall average is about \*\*  
\*\* which \*\* the \$5 amount used by the FCC in its *Verizon New Hampshire/Delaware 271 Order*.

**Q.25 Please describe the analysis.**

A.25 I obtained revenues for business and residence customers for SBC Illinois' major product groups by Access Area for the months of January through September 2002, which were then aggregated. The revenue aggregate was comprised of:

- Local Access (including the End User Common Line ("EUCL") charge)
- Local Usage
- IntraLATA Toll
- Central Office Features (such as Call Waiting)

These revenues represent the majority of SBC Illinois' local exchange revenues and are among the revenues that a CLEC reasonably could expect to attract on the basis of a local service offering. I also obtained from SBC Illinois and ARMIS the Company's switched access revenues. I did not have sufficient information to disaggregate these revenues either by Access Area or by business and residential customers, so rather than apply the switched access revenues to each Access Area, I report them here on an average per line basis only. I also obtained from SBC Illinois its business and residence retail access lines by Access Area for the same nine-month period. I divided the annualized nine-month aggregate of revenues by the corresponding average of the lines to produce revenue per



586 line by Access Area. The assumption, implicit in this analysis, is that the CLEC could  
587 attract the average SBC Illinois customer and therefore could be expected to generate the  
588 same average revenue per line as does SBC Illinois. This is a conservative assumption.  
589 The SBC Illinois average includes customers who are very low users of  
590 telecommunications services (and who therefore likely subscribe to low-priced plans) as  
591 well as to more intensive users. In contrast, as I will discuss in more detail later, a CLEC  
592 can (and they typically do) design its product offerings to appeal to the more intensive  
593 telecommunications users. Simply by avoiding the lowest revenue-producing customers  
594 a CLEC would be expected to generate average revenues per line in excess of the SBC  
595 Illinois average.

596 An additional reason that CLECs may be expected to attract higher per-customer  
597 revenues than does SBC Illinois is their potentially greater success in obtaining  
598 intraLATA toll revenues. Like SBC Illinois, a CLEC may provide intraLATA toll  
599 service to its customers. To the extent that the CLEC is more successful than is SBC  
600 Illinois in winning intraLATA toll subscription from its local service customers (and to  
601 the extent that such service provides a contribution), the CLEC will generate more net  
602 revenue per line than is shown in this analysis. Similarly, my analysis excludes revenues  
603 associated with other products such as messaging (voice mail), operator services,  
604 directory assistance, and data/Internet services. I exclude these revenues from the overall  
605 revenue computation because there are incremental costs associated with them that are  
606 not included in the UNE-P price, and I do not have access to a cost estimate for these  
607 services. To the extent that a CLEC could offer these products, however, a complete  
608 price squeeze analysis would include the revenues and costs of these services. To the

extent that they provide additional margin (their incremental revenues exceed their incremental costs), this further decreases the possibility of a price squeeze.

Although there are, therefore, a number of reasons that CLECs' average revenues would be higher than those reported here, I do not attempt to make any adjustments for these effects.

The next step compares the revenue per line figure with the corresponding UNE-P price proposed by SBC Illinois, as is shown in Table 5. The UNE-P "price" actually comprises the prices of its constituent UNEs, including the loop, port, switching, and transport.

<b>TABLE 5</b> <b>COMPUTATION OF AVERAGE SBC ILLINOIS LOCAL SERVICE REVENUE</b> <b>AND UNE-P PRICES BY ACCESS AREA</b>							
	ACCESS AREA						
	A		B		C		
<i>By Line by month</i>	Res	Bus	Res	Bus	Res	Bus	Total
Revenue Excl. Access <sup>(1)</sup>	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **
Proposed UNE-P <sup>(2)</sup>	\$14.23	\$14.23	\$25.84	\$25.84	\$29.46	\$29.46	\$27.43
Margin w/out Access	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **
Access Revenues							** [REDACTED] **
Margin With Access							** [REDACTED] **
NOTES:							
<sup>(1)</sup> Average monthly revenues per line per month are based on January through September 2002 data.							
<sup>(2)</sup> SBC proposed UNE-L price and the CCM November 2002 platform computations (with dial equipment minutes).							
<sup>(3)</sup> Sum of 2001 interstate switched access revenues (ARMIS) and 2001 intrastate switched access revenues (Aggregate Revenue Test from SBC Illinois Annual Price Cap Filing.)							

The analysis shows that if the CLEC used UNE-P and attracted the average SBC Illinois customer, even without accounting for the margins that might be available from the various services that my analysis has excluded, it could achieve an overall average margin of \*\* [REDACTED] \*\*, <sup>28</sup> which \*\* [REDACTED] \*\* the \$5 amount used by the FCC in its

<sup>28</sup> I do not report the estimated margin by residential and business class of service, or by Access Area, because, as I mentioned earlier, I cannot disaggregate switched access revenues.

623 *Verizon New Hampshire/Delaware 271 Order*. Thus, there is no manifest evidence that  
624 the proposed prices would result in price squeeze against an efficient CLEC using UNE-  
625 P.

626 **Q.26 According to your analysis, the proposed UNE price does not appear to create a**  
627 **price squeeze. However, if an economically correct price squeeze analysis did**  
628 **demonstrate a price squeeze against efficient UNE-P providers, would this imply**  
629 **that the UNE prices are above their forward-looking cost?**

630 A.26 No. It may just as well mean, for example, that retail prices are below cost.

631 **Q.27 If UNE prices and retail prices together create a price squeeze, should the**  
632 **Commission reduce UNE prices below cost?**

633 A.27 No. Both as an economic matter and under TA96, proper UNE prices cannot be  
634 determined from a price squeeze analysis, but only from an analysis of costs. If a price  
635 squeeze exists against UNE-P carriers, it cannot be inferred that the UNE prices are too  
636 high or are not cost-based. If a proper cost analysis resulted in prices that created a price  
637 squeeze against UNE-P providers, however, it would nevertheless remain true that  
638 reducing UNE prices below cost would be inappropriate public policy, because  
639 engineering artificially low UNE prices to encourage (inefficient) competitive entry  
640 creates long term social costs. The appropriate course for such a situation would not be  
641 to decrease UNE prices below cost, but rather to permit retail prices to increase to more  
642 efficient levels.

643 **Q.28 What are the social costs of engineering artificially low UNE prices to encourage**  
644 **competitive entry?**

645 A.28 When telecommunications infrastructure is priced too low, one result is the classic  
646 divergence between supply and demand that occurs whenever prices are held below

compensatory levels. The phenomenon is similar to what happens in cities subject to “rent control.” Rent control holds prices below compensatory levels and results in (1) demand in excess of the social optimum; (2) supply that is less than the social optimum; (3) deterioration of the existing infrastructure; and (4) little or no investment in infrastructure.

Untenably low UNE prices based on a TELRIC study that uses unrealistic cost inputs lead to the rent control problem: high demand for UNEs relative to self-supply (provided that the retail price for telecommunications services is adequate to entice entry) and little or no new investment in infrastructure. Consumers are harmed in several ways:

- Genuinely new infrastructure-based choices are not developed: CLECs do not develop them, because they are better off using the existing network at cut-rate prices, and ILECs do not develop them, because they would wind up bearing alone the costs of anything new that does not succeed in the marketplace, and sharing with CLECs, at non-compensatory prices, anything new that does succeed;<sup>29</sup>
- New technologies are ignored or even discouraged; and
- Too little capital is invested in the existing infrastructure; external sources of such investment dry up, and economically rational ILECs become reluctant to spend a dollar on the network when they will recoup far less than that. Everyone loses, including UNE-based CLECs, if the ILEC network deteriorates as a result.

Furthermore, as with rent controls, once long-run economic decisions are made on the basis of uneconomically low prices, the effects of inefficient choices become costly to undo. In the subsidized housing context, this has resulted in the deterioration in the housing stock, depressed incentives to invest in new housing supply, and an artificial lack of mobility of renters who acquired a subsidized apartment. The same economic principles apply here. UNE prices that are uneconomically low encourage inefficient

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<sup>29</sup> As the United States Court of Appeals for the District of Columbia Circuit observed in its May 24, 2002, opinion in *United States Telecom Association v. FCC*: “If parties who have not shared the risks are able to  
Footnote continued on next page ...

reliance on the existing network, which leads to inefficient and depressed incentives by all parties—incumbents and CLECs—to invest in the existing infrastructure, in new infrastructure, and in new technology.

**Q.29 Does establishing artificially low UNE prices create any other social harms?**

A.29 Yes. To the extent that elements are shared among competitors, there is reduced competition in the production of that element. Supreme Court Justice Stephen Breyer articulated this fact well when he wrote:

Nor are any added costs imposed by more extensive unbundling requirements necessarily offset by the added potential for competition. Increased sharing by itself does not automatically mean increased competition. It is in the *unshared*, not in the shared, portions of the enterprise that meaningful competition would likely emerge. Rules that force firms to share *every* resource or element of a business would create not competition, but pervasive regulation, for the regulators, not the marketplace, would set the relevant terms.<sup>30</sup>

It is a straightforward economic principle that the more that is shared, the less will be the competition along that particular dimension and the greater the call for additional regulation. CLECs that rely on the incumbent's network do not, by definition, provide any innovation in the provision of the underlying facilities. Accordingly, UNE-P and resale providers have fewer avenues by which to make contributions to the marketplace. The result is not only less investment, but also, very fundamentally, less competition.

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come in as equal partners on the successes, and avoid payment for the losers, the incentive to invest plainly declines." *U.S. Telecom Association*, at \*25.

<sup>30</sup> *AT&T Corp., et al. v. Iowa Utilities Board, et al.*, 525 U.S. 366, 429 (1999). (Breyer, concurring in part and dissenting in part, concurring in relevant part). (Emphasis in original).

Hence, artificially encouraging UNE-P-based competition through uneconomically low UNE prices creates a number of additional social costs:

- **CLECs fail to make commitments to the marketplace.** When carriers invest in network assets, they make a commitment to the marketplace and are in a better position to compete with the ILEC at *all* levels of the production process. Moreover, facilities-based CLECs, having made such commitments, are much harder to drive from the marketplace and will fight harder (e.g., reduce prices more substantially) to stay, thereby benefiting consumers.
- **CLECs delay or avoid risky investment in innovation.** A new entrant that has the choice between sinking risk capital in the market or using the incumbent's (sunk) capital at (or below) cost will under-invest. This effect is well-recognized in the economics literature.<sup>31</sup> Especially because telecommunications technology is marked by rapid innovation and competing technologies, facilities investment is risky—because it commits the entrant to a technology that may soon reveal itself to be inferior to other technologies or less favored by customers. Having the ability to lease UNEs allows entrants to delay their own investments and efforts at innovation and idly wait to see which technologies pan out. Uneconomically low UNE prices encourage excessive, inefficient amounts of such delay.

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<sup>31</sup> See, Reply Affidavit of Professor Jerry A. Hausman on Behalf of the USTA, *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, before the Federal Communications Commission, May 29, 1996. See also, Debra J. Aron, Ken Dunmore, and Frank Pampush, "Worldwide Wait? How the Telecom Act's Unbundling Requirements Slow the Development of the Network Infrastructure," *Industrial and Corporate Change* 7, no. 4 (1998): pp.615-621. For the fundamentals of decision making under uncertainty, see Avinash K. Dixit and Robert S. Pindyck, *Investment Under Uncertainty* (Princeton: Princeton University Press, 1994): pp. 93-120. Also, Footnote continued on next page ...

- **CLECs become dependent on ILECs in the long run.** Competitors that avail themselves of underpriced UNEs may come to view these UNEs as an entitlement, and may demand that underpriced UNEs continue to be available even after the justification for the unbundling of any particular element has disappeared, in order to preserve their valuable “options” on technology. This is a classic flaw associated with what is known as the “infant industry” argument.

Often implemented in the form of tariffs to protect a fledgling domestic industry from foreign competition, the “infant industry” rationale encourages policy makers temporarily to handicap incumbents or offer preferences to their less-experienced rivals in order to boost the latter’s ability to compete and overcome the alleged advantages of incumbency. There are many pitfalls associated with infant industry regulations, which cause economists, as a whole, to question their wisdom in most circumstances.<sup>32</sup>

In general, it is very difficult to eliminate the preferential treatment once the upstarts are on their feet. As noted by renowned economist Alfred Kahn and co-author William Taylor, “so long as companies are insulated from competition, they are, to that extent and for that reason, less likely ever to grow up and attain the ability to compete without such special protections.”<sup>33</sup> Establishing undue regulatory protections of any sort encourages firms to enter, make sunk investments, and thereby

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Avinash K. Dixit and Robert S. Pindyck, “The Options Approach to Capital Investment,” *Harvard Business Review* (May-June, 1995): p. 106.

<sup>32</sup> Alfred E. Kahn and William E. Taylor, “The Pricing of Inputs Sold to Competitors: A Comment,” *Yale Journal on Regulation* Vol. 11 (Winter 1994): pp. 225-240. (Hereafter *Kahn and Taylor*).

730 become reliant on the regulatory protections under which their investments made  
731 economic sense. Some such providers may not be viable at all without protection,  
732 and others may have made investments that would have been excessive or unwise had  
733 the protection not been in place. Once the entrants are in the market and investments  
734 are made, however, these parties become a visible political factor and it may become  
735 difficult to abandon the protections that render them viable.

736 The presence of inefficient, protected competitors creates additional costs  
737 associated with infant industry regulation by encouraging potential entrants to devote  
738 a large portion of their energies to rent seeking; by which I mean, litigating and  
739 lobbying to obtain and perpetuate preferential subsidies and protections, rather than  
740 concentrating on providing superior service to consumers at attractive prices.  
741 Moreover, any regulation that protects a class of competitors from competition  
742 imposes a cost stemming from its interference with the efficient distribution of supply  
743 among competitors on the basis of their relative costs.

- 744 • **CLECs are encouraged to waste ILEC resources.** The waste of ILEC resources  
745 derives from the fact that CLECs are not required to make any purchase commitment  
746 when they demand access to a network element, and they thereby impose unbundling  
747 costs on the incumbent. A CLEC can declare that it wants to lease a particular  
748 network element, and urge regulators to require ILECs to provide that element. If the  
749 CLEC prevails, the ILEC must incur costs to provision the UNE (by establishing  
750 appropriate operation support systems, for example), even if the CLEC makes no

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<sup>33</sup> Kahn and Taylor, p. 234.



commitment to lease the element once it is actually made available as a UNE. Indeed, the incumbent may sink costs into unbundling the element only to find that no entrant actually leases it, let alone in sizeable quantities. If any CLECs do lease the element, they may cease doing so at any time, with no regard for the unbundling costs that the ILEC incurred but did not recover. Unless all such costs are recovered up front as non-recurring costs, the cost of the unbundling would therefore be borne by the incumbent.

**Q.30 Do uneconomically low UNE prices encourage CLECs to serve less profitable customers rather than “cherry picking” only the most desirable customers?**

A.30 No. As I mentioned earlier, CLECs appear to want to skim only the cream. This is true even when they are offered UNE prices that are set below cost so that heretofore-unprofitable customers are made “profitable.”

Even a CLEC that benefits from uneconomically low UNE-P prices has an incentive to create a pricing package that appeals to the more profitable customers and does not appeal to the unprofitable ones. The pricing of wireless service provides a model of how to separate profitable and unprofitable customers and attract only the profitable ones. Typical pricing of wireless service is characterized by a monthly service fee, which includes features such as voice mail and caller ID, and a specified bundle of minutes. Those who might wish to use wireless service for emergencies only, and therefore might be willing to pay only a very low monthly price (but a higher per minute price for the few minutes that they expect to use), will not be attracted to a package that includes features and a large block of minutes at a correspondingly higher price.

773 MCI's Neighborhood Choice plan is similar in pricing structure to the pricing  
774 structure of wireless bundles. It is a limited local/long distance offering for \$28.99 per  
775 month in Illinois.<sup>34</sup> Such an offering is geared to residential telecommunications users  
776 who are willing to pay for features such as voice mail, who make relatively many long-  
777 distance calls, and who therefore (as SBC Illinois customers) contribute the most to the  
778 financing of the underlying network. The plan appears specifically designed *not* to  
779 appeal to those residential customers who generate the least revenue or receive a net  
780 subsidy (i.e., pay less than the cost of their local exchange service). A customer who  
781 spends substantially less than \$28.99 for local, long-distance, and features is unlikely to  
782 select the MCI plan. For example, a residential customer in Evanston who makes only 20  
783 local calls per month and no long distance calls pays \$10.52 (excluding various universal  
784 service fees and taxes) under SBC Illinois' Local Saver Pack 30, but would pay \$28.99  
785 under MCI's Neighborhood Choice plan (excluding the same fees and taxes).

786 Similarly, AT&T offers a calling plan, "Call Plan Unlimited," that provides  
787 Illinois customers unlimited local calling from home, special rates for local-toll and long-  
788 distance calls, and certain vertical features for a monthly price of \$22.55 (excluding any  
789 additional charges for local-toll or long-distance).<sup>35</sup> A low-use caller, such as one who  
790 makes only 20 calls per month, would pay \$22.55 for AT&T's plan, compared to about

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<sup>34</sup> See [www.theneighborhood.com/res\\_local\\_service/jsps/join\\_plans.jsp?state=IL&Bus\\_Ind=RES&subpartner=DEFAULT&rateCode=BIL00001&ANI=8474244102&wireSolution=Y&service\\_provider=MCIT&group=101&cos=B](http://www.theneighborhood.com/res_local_service/jsps/join_plans.jsp?state=IL&Bus_Ind=RES&subpartner=DEFAULT&rateCode=BIL00001&ANI=8474244102&wireSolution=Y&service_provider=MCIT&group=101&cos=B) accessed on December 19, 2002. The plan is also marketed to small businesses, and it would have the same effect of attracting small businesses that are telephone-intensive (i.e., value features and long-distance calls), while not attracting businesses that do not use the phone much, or that use it primarily to answer incoming calls.

<sup>35</sup> See [www.local.att.com/echannel/action/nationaloverview?ChannelSession=PgNMWq71Dk|2491107011891722033/168698896/6/7003/7003/7004/7004/7003/-1|3786345769177786217/168698888/6/7003/7003/7004/7004/7003/-1](http://www.local.att.com/echannel/action/nationaloverview?ChannelSession=PgNMWq71Dk|2491107011891722033/168698896/6/7003/7003/7004/7004/7003/-1|3786345769177786217/168698888/6/7003/7003/7004/7004/7003/-1) accessed December 19, 2002.

791 \$10.52 for SBC Illinois' plan. As with the MCI plan, a low-use customer has no  
792 incentive to switch to either AT&T's Call Plan Unlimited or MCI's Neighborhood  
793 Choice plan. Indeed, these plans are designed to discourage interest from such a low-  
794 volume user.

795 While I would anticipate that SBC Illinois would attempt to respond by offering  
796 plans that also uniquely appeal to desirable customers, I see no reason that a rational  
797 company in SBC Illinois' position today would seek to design plans that are more  
798 attractive to the low-revenue customers than are its existing plans. Hence, SBC Illinois'  
799 uneconomically low UNE prices do not appear to be bringing benefits of competition to  
800 the low-revenue customers, who are the traditional beneficiaries of universal service  
801 policies.

802 In fact, given the persistence of this cream skimming, SBC Illinois' UNE prices,  
803 if left uneconomically low, may actually harm the interests of low-revenue customers.  
804 The Company faces a double-whammy: CLECs are permitted to lease UNEs at prices  
805 that are below the actual cost of providing the facilities for the average customer; and  
806 CLECs target only the high-profit customers, who contribute more than the average to the  
807 total cost of maintaining the network. Hence, by subsidizing inefficient market entry by  
808 non-facilities-based rivals, who then poach the sources of the very revenues that enable  
809 SBC Illinois to serve high cost, low revenue residential customers and continue to invest  
810 in the network, SBC Illinois' existing UNE prices threaten a vicious cycle that ultimately  
811 could substantially harm the Company's ability to serve unprofitable customers.

812

**IV. EVIDENCE OF MARKETPLACE DISTORTIONS AND  
INEFFICIENCIES IN ILLINOIS**

**Q.31 Do you have any evidence that any of the social costs you have discussed are already occurring in Illinois?**

A.31 Yes. SBC Illinois' current UNE prices are encouraging the rapid proliferation of technically unsophisticated, under-funded, non-facilities-based competitors that find it less risky, less technically demanding, and cheaper to piggyback on SBC Illinois' network by relying on resale and UNE-P than to develop and execute a business plan that involves infrastructure investment and technical expertise.

**Q.32 Did you analyze market data in arriving at your conclusion?**

A.32 Yes. I investigated data regarding CLECs in the Illinois marketplace, the number of lines that they are serving, and the methods (e.g., self-supply, resale, UNE-L, or UNE-P) that they are using to serve customers.

**Q.33 What does your analysis demonstrate?**

A.33 I find that:

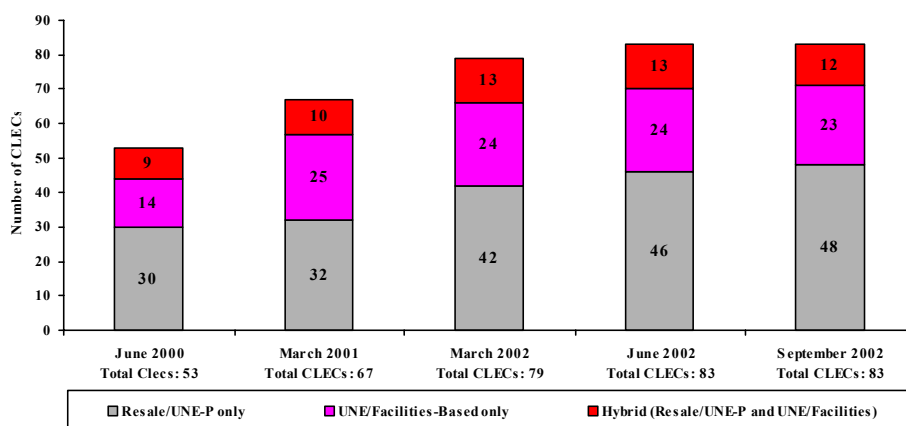
- Since March 2001, there has been no net new entry of facilities-based (i.e., self-supply and UNE-L based) CLECs. Between March 2001 and September 2002, the number of CLECs providing service in the SBC-served territory of Illinois has increased by 16. The number of non-facilities-based CLECs (i.e., UNE-P and resale carriers) *also* increased by 16 during this period.
- Facilities-based line additions are substantial, but the growth has decreased precipitously in the latest available quarter (ending September 2002), while Resale/UNE-P have continued a steady pace of net additions.

**Q.34 Dr. Aron, based on your review of the data, please describe the type of competitive entry now occurring.**

A.34 In the SBC-served territory of Illinois, the number of CLECs has increased from 53 in June 2000 to 83 by June 2002, and it has held steady since. However, the composition of the competitive carriers has changed. As Chart 3 shows, since March 2001, all of the net increase in the number of new carriers has been from *non-facilities* based carriers.

Between March 2001 and March 2002, 10 of 12 net additional carriers were non-facilities-based (i.e., resale or UNE-P only). Between March 2002 and June 2002, all four of the net additional carriers were entirely non-facilities-based. Between June 2002 and September 2002, two more non-facilities-based carriers entered, even though the total number of carriers did not change. On balance, the entry pattern in Illinois is now entirely comprised of carriers that are completely reliant on SBC Illinois' network facilities.

**Chart 3**  
**CLECs Offering Service in**  
**SBC Illinois' Service Area\***

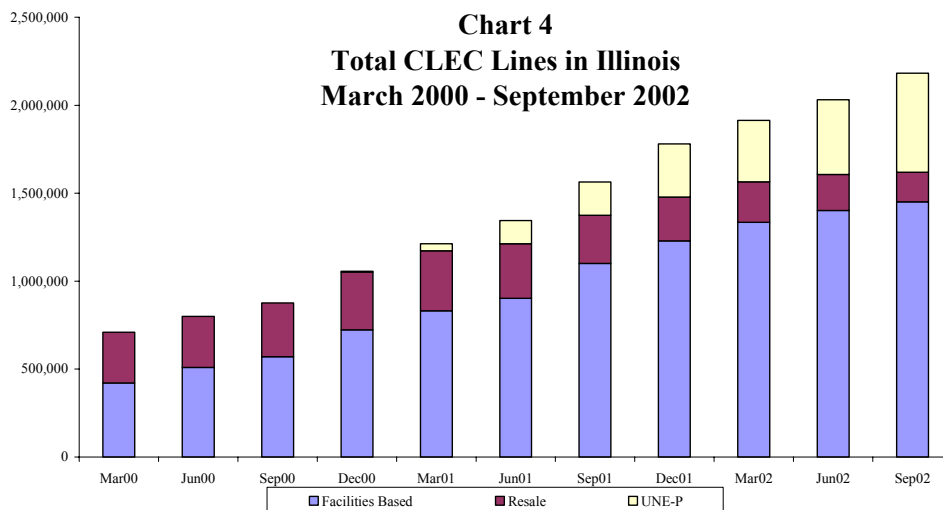


Note: \* A CLEC was identified as offering service in SBC Illinois's service territory if it had one or more local interconnection trunks with SBC Illinois or was leasing eleven or more UNE loops from SBC Illinois ("UNE/Facilities-Based only"), or was reselling 11 or more SBC Illinois local exchange service lines or leasing 11 or more UNE-P ("Resale/UNE-P only"). Carriers identified as offering service using both UNE-L/self-provisioned facilities and resale/UNE-P are labeled 'hybrid' CLECs.

Source: LECG analysis of data provided by SBC Illinois

**Q.35 In what ways are carriers increasing their reliance on the SBC Illinois' infrastructure?**

A.35 Since March 2000, facilities-based lines have more than tripled, from about 421,000 to 1.45 million. This represents an average rate of additions (net of any losses) of about 103,000 per quarter for the past 10 quarters. However, in the quarter ended September 2002, the increase has fallen to about 48,000, less than half the average. As Charts 4 and 5 show, this is not an isolated event. The number of facilities-based line additions, net of losses, has decreased in each of the last four quarters since September 2001. In contrast, in the quarter ending September 2002, the increase in UNE-P lines (net of any losses) was about 139,000, and net UNE-P additions have averaged about 86,000 per quarter since September 2001. Hence, the trend of CLEC competition in Illinois is toward increased reliance on the incumbent's network, and away from facilities-based forms of service provisioning and investment.



Source: LECG Analysis of Data Provided by SBC Illinois

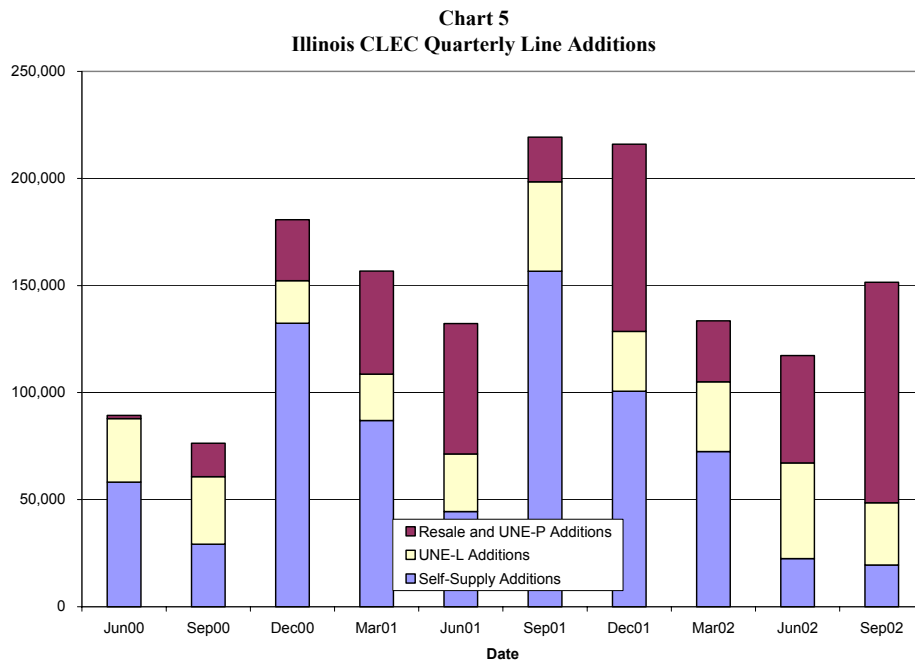


Chart 5, above, shows that some of the increase in UNE-P lines appears to represent a displacement of resale lines. However, it also appears that net growth in CLEC-served lines increasingly is based on UNE-P additions, with facilities-based additions tapering off.

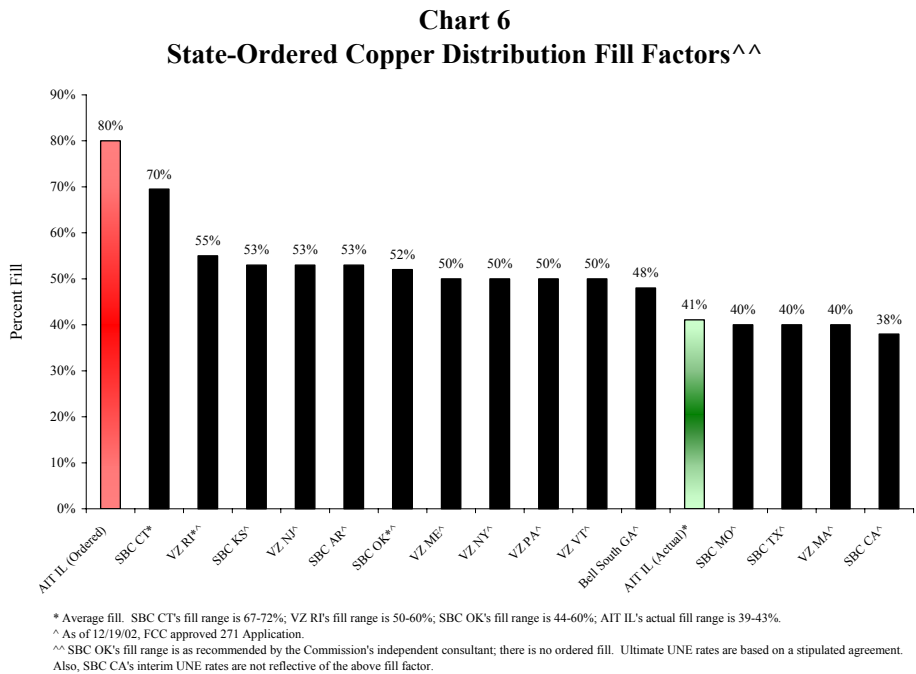
## V. POSSIBLE IMPROVEMENTS TO THE TELRIC APPROACH IN ILLINOIS

**Q.36 How can the Commission ensure that the TELRIC-based approach is carried out in a reasonable manner in Illinois?**

**A.36** The TELRIC modeling process is based on a myriad of cost assumptions. I will comment on two significant ones, fill factors and stranded costs, whose resolution can help ensure that UNE-prices are compensatory.

**Q.37 Are the fill factors used to determine SBC Illinois’ current UNE prices overstated?**

A.37 I believe so. The FCC’s TELRIC methodology requires that unit costs be derived from total costs by using “reasonably accurate ‘fill factors’ (estimates of the proportion of a facility that will be ‘filled’ with network usage)” and, more specifically, notes that unit costs can be derived “by dividing the total cost associated with the element by a reasonable projection of the actual total usage of the element.”<sup>36</sup> However, it does not appear that this principle was properly applied to develop the Company’s current UNE prices. Chart 6 (State-Ordered Copper Distribution Fill Factors) and Chart 7 (State-Ordered Copper Feeder Fill Factors) display the values for various state Commission-ordered fill factors applicable to Unbundled Loop Copper Distribution and Feeder facility

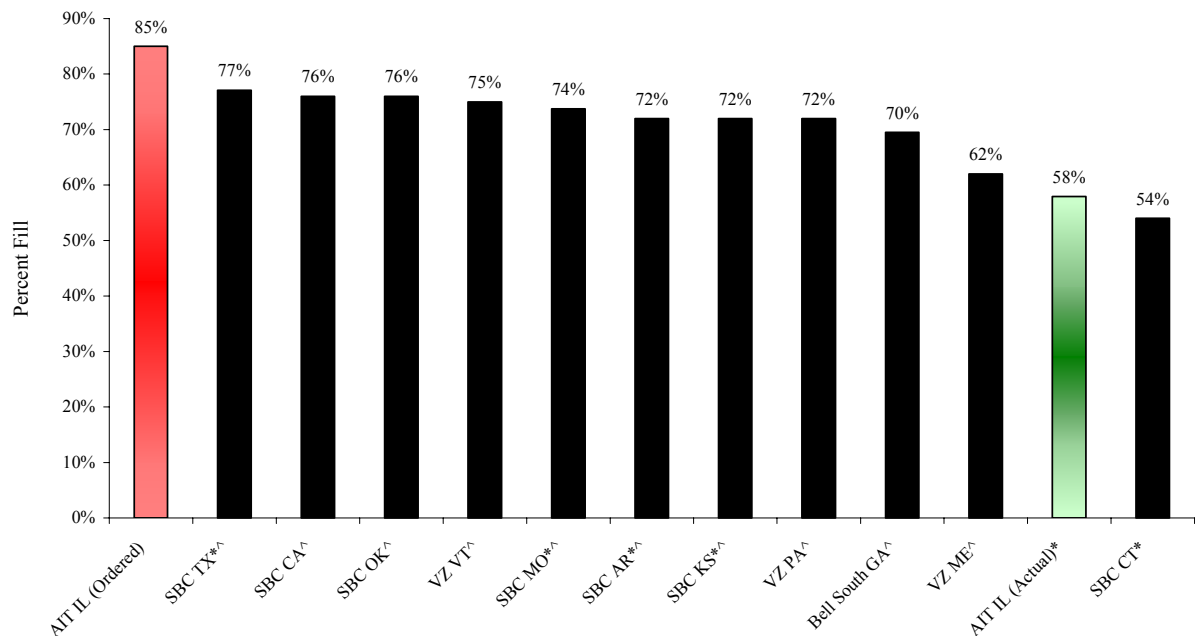


<sup>36</sup> Local Competition Order, ¶ 682.



883 investment development for various RBOC ILECs. Also included in these exhibits for  
884 comparative purposes are SBC Illinois' *actual* fill percentages<sup>37</sup> for copper loop  
885 distribution and feeder facilities.

**Chart 7 (Revised)**  
**State-Ordered Copper Feeder Fill Factors<sup>^^</sup>**



\* Average fill. SBC TX's fill range is 75-79%; SBC MO fill range is 70-78%; SBC AR's fill range is 71-73%; SBC KS's fill range is 71-73%; AIT IL's actual fill range is 48-68%; VZ RI's fill range is 50-60%; SBC CT's fill range is 48-60%.  
<sup>^</sup> As of 12/19/02, FCC approved 271 Application.  
<sup>^^</sup> SBC OK's fill is as recommended by Commission's independent consultant; there is no ordered fill. Ultimate UNE rates are based on stipulated agreement. Also, SBC CA's interim UNE rates are not reflective of the above fill factor.

886  
887 In order to compare the fill factors in Illinois to those in other states, I surveyed  
888 the fill factors ordered by other states from which I could gather data. These included all  
889 of the SBC states (whose ordered fill factors were provided to me by SBC) and a sample  
890 of other states, focusing on those states that have received Section 271 approval. The  
891 data show that SBC Illinois' ordered fill factors are at the extreme high end of the states  
892 surveyed and exceed SBC Illinois' actual fills by a substantial margin. Of special

<sup>37</sup> Actual fill percentages were obtained from SBC Ameritech Cost Organization.

significance, Charts 6 and 7 show that the ICC-ordered fill factors are substantially higher than those of other ILECs that have already obtained Section 271 approval from the FCC.

In the course of granting those Section 271 applications, the FCC apparently found that those other ILECs' use of substantially lower fill factors was fully consistent with TELRIC. In my opinion, the fill assumptions used as the basis for the existing UNE prices represent hypothetically high utilization rates that are not achievable in the real world and do not represent "reasonably accurate fill factors" or "a reasonable projection of the actual total usage of the element" as mandated by the FCC's TELRIC methodology.<sup>38</sup> Any type of "targeted," "objective," or "optimal" approach is contrary to the requirements laid out in the FCC's *Local Competition Order*.

In the context of TELRIC cost models, higher fill factor assumptions translate into lower average estimated costs. Therefore, because SBC Illinois' TELRIC fill factors have been set too high in Illinois, its TELRIC costs for unbundled loops have been understated, thereby contributing to the Company's inability to recover its costs of providing unbundled loops to CLECs.

**Q.38 Please provide an example of what a fill factor means in the real world.**

A.38 In the real world, firms generally carry spare capacity, which means that its plant is not running flat out at all periods of time. There are a number of reasons that spare capacity is efficient and necessary in a telecommunications network. First, it is entirely unrealistic to suppose that a real-world firm will know with 100 percent certainty what its actual future demand will be. In economics, there is a principle attributed to Nobel Laureate

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<sup>38</sup> *Local Competition Order*, ¶ 682.

George Stigler that a real-world efficient firm will incur costs that are higher than what it might otherwise incur if it were to build a rigid, inflexible plant that is incapable of responding efficiently to changes, variability, and uncertainty in the market.<sup>39</sup> A real-world firm will incur higher costs to build an *adaptable* plant that can accommodate changes in the economic or market situation. This principle applies not only to spare capacity needed for flexibility in accommodating uncertain growth in demand, but also to spare capacity that is necessary to accommodate variability in demand, with or without net growth. An airline, for example, may have an average fill factor of 50 to 70 percent (or what is called in that industry “load factors”). Airlines maintain spare capacity not necessarily because they expect demand to grow next year, but because demand is higher on Friday evenings than Wednesday mornings, and because some Fridays are simply and unpredictably busier than others. Similarly, networks must maintain spare capacity, because it is impossible to predict which households will demand new or additional lines.

For example, consider two Chicago suburbs, Evanston and Highland Park. It could turn out that 30 percent of households in each neighborhood demand a second line. Or it could turn out that 60 percent (or 100 percent) of households in Evanston demand second lines, and none do in Highland Park. Of course, all scenarios in between are possible as well. Planning for 30 percent in each suburb will not suffice to handle the possibilities (and statistical likelihood) of unbalanced patterns of demand, because plant installed in one area cannot be used to serve demand in another. To handle at least some of those possibilities in an efficient way, more than 30 percent spare capacity must be installed in *each* neighborhood if 30 percent additional lines are expected on average.

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<sup>39</sup> George J. Stigler, *The Theory of Price*, 3<sup>rd</sup> ed. (New York: Macmillan Publishing, 1966), pp. 130-131.

A TELRIC model in which the engineering specifications are based on an assumption that the network is built to precisely meet a pre-determined demand, without considering how to accommodate future moves and changes, violates Stigler's adaptability principle. The costs that need to be incurred to flexibly accommodate uncertainty are costs that are part of a forward-looking, efficient network. An efficient provider knows that its demand will materialize over time (not all at once) and that end-users may move around, thereby requiring new capacity in one geographic area while capacity is unused in another. The efficient provider will account for these factors in its capacity planning decisions. Efficient forward-looking firms utilize spare capacity as a way to hold down other costs, manage risk, and maintain service quality. Accordingly, spare capacity is a legitimate, economic, and efficient cost of doing business.

**Q.39 What are some of the other reasons for having spare capacity?**

A.39 The following represent some examples that are based on issues of (1) an economic tradeoff between inputs; (2) technological considerations; (3) service quality; and (4) prudent response to risk.

- **Economic Tradeoff Between Inputs.** It would be unduly costly to install distribution plant overnight at new locations whenever such new plant is called for, with the thought of coming back again in the near future (and opening up a street perhaps) to install additional plant – all in the anticipation of running at a higher average utilization rate during a particular time period. The placement of new plant involves such tasks as siting, obtaining of permits, trenching (or placing of utility poles), and other construction

activities. Some of these costs will have to be incurred again and again every time new plant is called for in a particular location.

- **Technological Constraints or “Breakage.”** Technological constraints impact the opportunity set that firm managers have to select from and so affect costs. For example, telephone distribution plant is “lumpy”: it is available only in a finite number of sizes. It is, therefore, infeasible to obtain physical maximum capacity utilization from lumpy capital except in the rare instance where demand exactly matches the physical supply. For example, if the efficient number of distribution lines in an area were 80, but the smallest size of cable that provides 80 lines were 100 pair cable, engineers might reasonably install the 100 pair cable, resulting in 20 lines of spare capacity. This spare capacity is not the result of inefficiency nor can one expect it to be eliminated going forward. It is a cause of spare capacity that will result in any efficient network subject to technological constraints.

- **Service Quality Considerations.** One finds, in most industries, that customers have to wait for the product or service they want. Anyone who has ordered from a catalog understands the meaning of “back-ordered.” However, back ordering is not considered an acceptable option in local exchange telecommunications service provisioning. To keep quality up, telecommunications carriers must have on hand sufficient capacity, *in advance of* demand, to meet expected demand. The costs of advance capacity are a necessary part of the “ready-to-serve” obligation and so are costs of providing service at current quality levels.

**Q.40 What are your conclusions about utilization rates and fill factors?**

**A.40** In the abstract world of modeling, higher utilization rates translate into lower average costs since the cost numerator is divided by a higher divisor of usage. But in the real world, spare capacity is a legitimate cost that is driven in part by technology constraints, saves other resources, and eliminates other costs. Therefore, the firm should be permitted to recover those costs in its UNE prices. A model that uses hypothetical fill factors of the sort not found in the real world will result in (1) unattainably low costs and (2) a network that is not sufficiently flexible to address real-world risk and uncertainty.

**Q.41 Dr. Aron, please address the issue of stranded plant.**

**A.41** Among the key inputs into the TELRIC cost analysis are the assumptions about the depreciation lives of the network assets. Competition and technological change can reduce the economic lives of network assets, and these impacts should be accommodated in the depreciation lives that are used in the TELRIC model. I understand that SBC Illinois uses the same depreciation lives in its forward-looking TELRIC model that the company uses for financial reporting purposes of its new assets. I understand that Dr. Vanston has reviewed the SBC Illinois proposal and found that the proposed lives are consistent with what he calls the “projection lives” for the embedded base, which reflect the total expected lives of existing assets or (in other of Dr. Vanston’s terminology) the average age of existing assets (or classes) plus the average remaining life of that asset.

The embedded projection life is a very conservative assumption under the FCC’s TELRIC terminology. The reason is that under TELRIC, one would evaluate the anticipated life of a hypothetical network that is installed today. I understand Dr. Vanston’s expert opinion to be that technological change affects new and old assets alike.

The average remaining life concept, therefore, is theoretically more consistent with the FCC's hypothetical network assumption than is the embedded projection life concept.

To see this, consider an example. Suppose the driving force determining the economic longevity of copper loops is the anticipated displacement of copper by fiber in, say, the year 2005. (To make the example very simple, I am supposing, counterfactually, that all displacement would happen in one year; but the conceptual point is the same.) This would mean that the average remaining life on existing copper would be three years as of the year 2002. The projection lives, however, would take into account the embedded life of the existing assets. If the embedded plant has been in place for, on average, 10 years, then the projection life for this plant would be (roughly) 13 years. This is the asset life concept that is reflected in SBC Illinois' depreciation life assumptions used to develop its proposed UNE prices.

Nevertheless, if a hypothetical firm were to install the network today, any copper placed in that network would be displaced in three years, not 13. Accordingly, any copper installed would have to have the opportunity to recover its costs over the three-year time period to be an economical investment. A 13-year life would neither create the correct signals for investment, nor, strictly speaking, fully reflect the FCC's hypothetical network assumption. Hence, the projection lives utilized by SBC Illinois to develop its proposed UNE prices actually are highly conservative, which will result, all else the same, in underestimating SBC Illinois' and TELRIC costs, as they arguably do not fully reflect the risks of stranded plant in the network associated with the FCC's hypothetical network assumption.

**Q.42 Does this conclude your direct testimony?**

1024 A.42 Yes.